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(54) Title: **MULTILAYERED MICROCULTURES**

(57) Abstract: A multilayer microculture capable of modeling complex *in vivo* structures such as mammalian tissues and organ structures is provided, along with methods for producing such a microculture and methods of using such microcultures for assaying for modulators of cell-cell interaction, cell migration, cell proliferation, cell adhesion or cellular or organismal physiology. Further provided are methods of identifying hazardous materials such as environmental toxins and pollutants (e.g., carcinogenic compounds), and methods of monitoring organismal physiology.

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